

Appl. No. 09/574,692
Amdt. dated March 8, 2004
Reply to Office Action of September 11, 2003

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-52. (canceled)

Claim 53. (currently amended) ~~The biochip of claim 51~~ A biochip for displaying attached polynucleotides comprising:

(a) a substrate having an oxide or nitride surface; and

(b) an ordered hydrocarbon monolayer formed from first alkyl chains, said first alkyl chains having proximal and distal ends, said first alkyl chains interacting with each other to form said ordered hydrocarbon monolayer, said ordered hydrocarbon monolayer being attached to said surface through one or more silane residues on each of said first alkyl chains' proximal ends, said first alkyl chains' distal ends each having a functional group capable of covalently attaching a polynucleotide to said first alkyl chain,

wherein the biochip further comprising comprises one or more border regions separating two or more of said immobilization regions to form two or more spaced apart immobilization regions.

Claim 54. (canceled).

Claim 55. (currently amended) ~~The biochip of claim 54~~ A biochip for displaying attached polynucleotides comprising:

(a) a substrate having an oxide or nitride surface; and

(b) an ordered hydrocarbon monolayer formed from first alkyl chains, said first alkyl chains having proximal and distal ends, said first alkyl chains interacting with each other to form said ordered hydrocarbon monolayer, said ordered hydrocarbon monolayer being attached to said surface through one or more silane residues on each of said first alkyl chains' proximal

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ends, said first alkyl chains' distal ends each having a functional group capable of covalently attaching a polynucleotide to said first alkyl chain,

wherein said ordered hydrocarbon monolayer is formed from a ratio of said first mentioned alkyl chains having a first mentioned functional group for attaching polynucleotides, and second alkyl chains, said second alkyl chains having proximal and distal ends, said alkyl chains interacting with each other to form said ordered hydrocarbon monolayer, said ordered hydrocarbon monolayer being attached to said surface through one or more second silane residues on each of said second alkyl chains' proximal ends, and

wherein said ordered hydrocarbon monolayer is made from two or more different kinds of molecules molecular species.

Claim 56. (currently amended) The biochip of claim ~~56~~ 55 wherein said functional group is one of hydroxyl, carboxyl, amino, aldehyde, carbonyl, methyl, methylene, alkene, alkyne, carbonate, aryl iodide, or vinyl groups.

Claim 57. (currently amended) The biochip of claim ~~56~~ 55 wherein said functional group is a photoactivatable functional group.

Claim 58. (new) The biochip of claim 55 wherein the first alkyl chains are the same length.

Claim 59. (new) The biochip of claim 55 wherein the oxide or nitride surface is selected from the group consisting of silicon oxide, titania, tantalum oxide, silicon nitride, indium tin oxide, magnesium oxide, alumina, quartz, glass, and silica.

Claim 60. (new) The biochip of claim 55 wherein the first alkyl chains are from 8 to 22 carbons in length.